**Amendments to the Claims:**

This listing of the claims will replace all prior versions, and listings, of claims in the application.

1. (currently amended) A method of rotating data in a plurality of processing elements, comprising:

a plurality of shifting operations performed by a plurality of processing elements connected in an array; and

a plurality of storing operations performed by said plurality of processing elements, said shifting and storing operations coordinated to enable a three shears operation to be performed on the data, and wherein said plurality of storing operations is responsive to ~~the processing elements' positions~~ each processing element's position in said array.

2. (currently amended) The method of claim 1 wherein said plurality of storing operations are responsive to initial counts which are ~~one of~~ either loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

3. (original) The method of claim 2 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and the number of data shifts performed.

4. (original) The method of claim 3 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

5. (original) The method of claim 4 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

6. (original) The method of claim 5 wherein a storing operation is performed when a current count in a processing element is non-positive.

7. (original) The method of claim 1 additionally comprising selecting which processing elements are active in response to a row select signal and a column select signal.

8. (original) A method of rotating data in a plurality of processing elements, comprising:

a first shifting of a first plurality of data in a first direction;

a first storing of data by a first plurality of said processing elements in response to said first shifting and the positions of said first plurality of processing elements;

a second shifting of a second plurality of data in a second direction perpendicular to said first direction;

a second storing of data by a second plurality of processing elements in response to said second shifting and the positions of said second plurality of processing elements;

a third shifting of a third plurality of data in a third direction opposite to said first direction; and

a third storing of data by a third plurality of processing elements in response to said third shifting and the positions of said third plurality of processing elements.

9. (currently amended) The method of claim 8 wherein said first, second and third storing of data are responsive to initial counts which are ~~one of~~ either loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

10. (original) The method of claim 9 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and the number of data shifts performed.

11. (original) The method of claim 10 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

12. (original) The method of claim 11 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

13. (original) The method of claim 12 wherein a storing operation is performed when a current count in a processing element is non-positive.

14. (original) The method of claim 8 wherein said first, second and third plurality of processing elements are selected using a row select signal and a column select signal.

15. (currently amended) A method of rotating data in a plurality of processing elements, comprising:

a first plurality of shifting and storing operations coordinated to enable a first shear operation to be performed in a first direction in a plurality of processing elements arranged in an array;

a second plurality of shifting and storing operations coordinated to enable a second shear operation to be performed in a second direction perpendicular to said first direction in said array; and

a third plurality of shifting and storing operations coordinated to enable a third shear operation to be performed in a third direction opposite to said first direction in said array, and wherein said pluralities of storing operations are responsive to ~~the elements' positions~~ each processing element's position in said array.

16. (currently amended) The method of claim 15 wherein said pluralities of storing operations are responsive to initial counts which are ~~one of~~ either loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

17. (original) The method of claim 16 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and the number of data shifts performed.

18. (original) The method of claim 17 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

19. (original) The method of claim 18 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

20. (original) The method of claim 19 wherein a storing operation is performed when a current count in a processing element is non-positive.

21. (original) The method of claim 15 additionally comprising selecting which processing elements are active in response to a row select signal and a column select signal.

22. (original) A method of rotating data in a plurality of processing elements, comprising:

a first shifting of a first plurality of data in a first pair of directions;

a first storing of data by a first plurality of said processing elements in response to said first shifting and the positions of said first plurality of processing elements;

a second shifting of a second plurality of data in a second pair of directions perpendicular to said first pair of directions;

a second storing of data by a second plurality of processing elements in response to said second shifting and the positions of said second plurality of processing elements;

a third shifting of a third plurality of data in said first pair of directions; and

a third storing of data by a third plurality of processing elements in response to said third shifting and the positions of said third plurality of processing elements.

23. (currently amended) The method of claim 22 wherein said first, second and third storing of data are responsive to initial counts which are ~~one of~~ either loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

24. (original) The method of claim 23 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and the number of data shifts performed.

25. (original) The method of claim 24 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

26. (original) The method of claim 25 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

27. (original) The method of claim 26 wherein a storing operation is performed when a current count in a processing element is non-positive.

28. (original) The method of claim 22 wherein said first, second and third plurality of processing elements are selected using a row select signal and a column select signal.

29. (currently amended) A method of rotating data in a plurality of processing elements, comprising:

a first plurality of shifting and storing operations coordinated to enable a first shear operation to be performed in a first pair of directions in a plurality of processing elements arranged in an array;

a second plurality of shifting and storing operations coordinated to enable a second shear operation to be performed in a second pair of directions perpendicular to said first pair of directions in said array; and

a third plurality of shifting and storing operations coordinated to enable a third shear operation to be performed in said first pair of directions, and wherein said pluralities of storing operations are responsive to ~~the elements' positions~~ each element's position in said array.

30. (currently amended) The method of claim 29 wherein said pluralities of storing operations are responsive to initial counts which are ~~one of~~ either loaded into at least certain of said processing elements ~~and~~ or calculated locally based on the processing element's location.

31. (original) The method of claim 30 additionally comprising maintaining a current count in each processing element for each initial count, said current counts being responsive to said initial counts and the number of data shifts performed.

32. (original) The method of claim 31 wherein said maintaining current counts includes altering said initial counts at programmable intervals by a programmable amount.

33. (original) The method of claim 32 wherein said initial counts are decremented in response to a shifting of data to produce said current counts.

34. (original) The method of claim 33 wherein a storing operation is performed when a current count in a processing element is non-positive.

35. (original) The method of claim 29 additionally comprising selecting which processing elements are active in response to a row select signal and a column select signal.

36. (currently amended) A computer readable memory device carrying a set of instructions which, when executed, perform a method comprising:

a plurality of shifting operations using a plurality of processing elements connected in an array; and

a plurality of storing operations using said plurality of processing elements, said shifting and storing operations coordinated to enable a three shears operation to be performed on the data, and wherein said plurality of storing operations is responsive to each processing element's position in said array ~~the processing elements' positions~~.